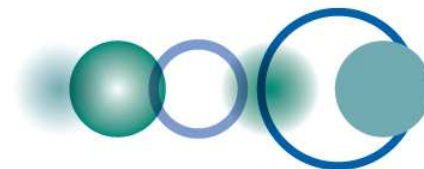


Air Quality Community-Oriented Infrastructure: GEOSS ADC AIP-II

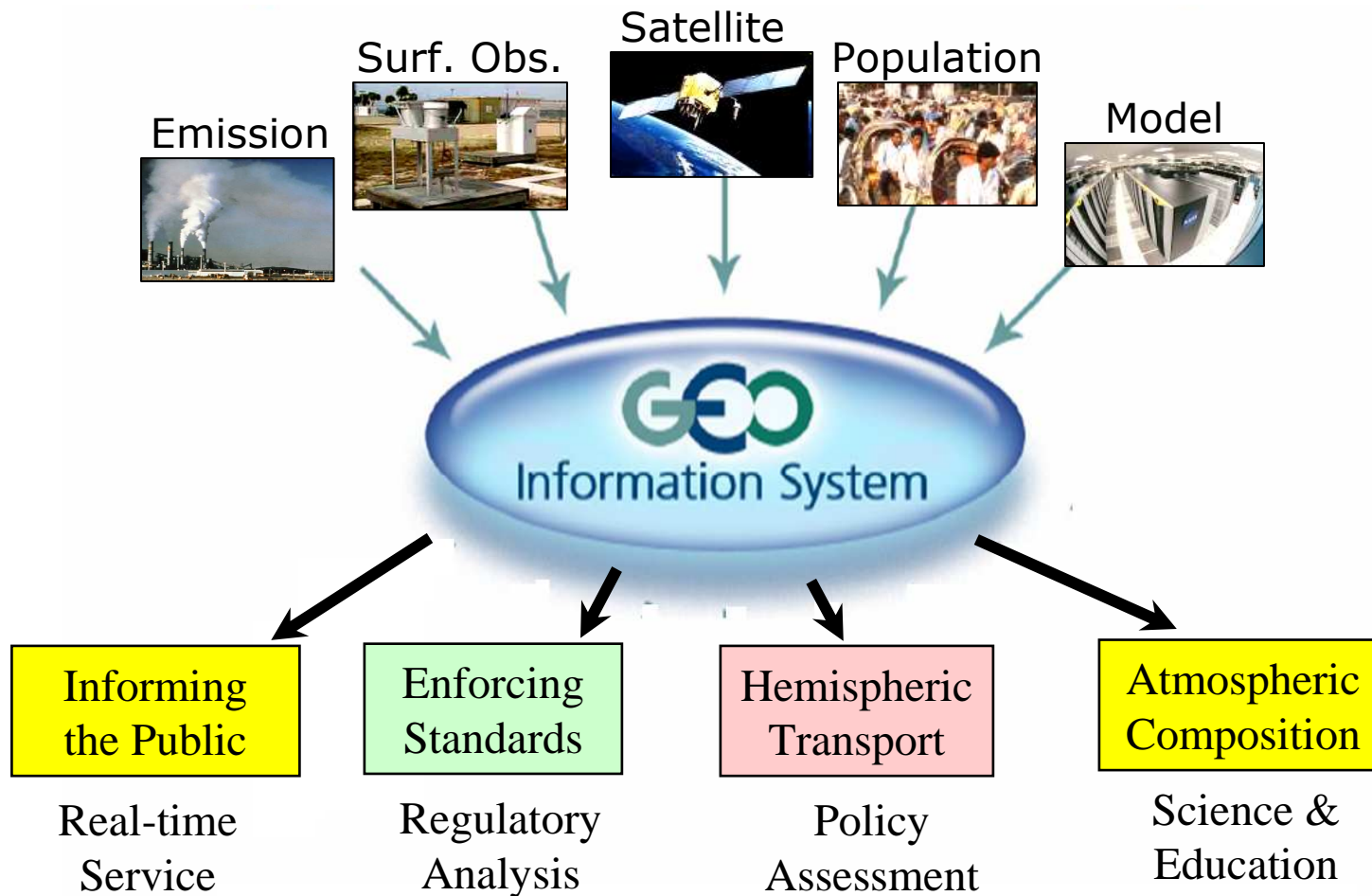
Erin Robinson
ESIP Air Quality Workgroup

ESIP Summer Meeting, 8 July 2009
UC- Santa Barbara

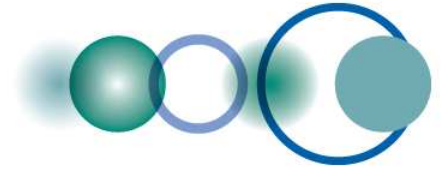




Observing Systems



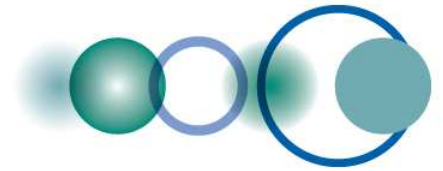
Air Quality & Health Applications



Hurdles

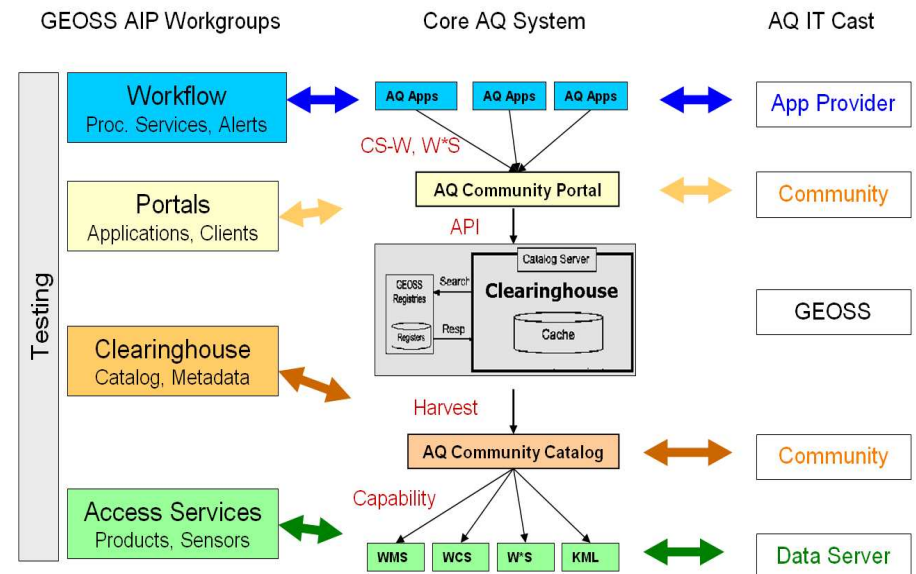
*“The user cannot **find** the data;
If he can find it, cannot **access** it;
If he can access it, ;
he doesn't know **how good** they are;
if he finds them good, he can not **merge** them with other data”*

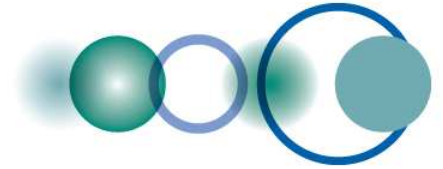
The Users View of IT, NAS 1989



Goals of AIP II for Air Quality

- Test and evaluate the GEOSS Common Infrastructure for AQ applications.
- Register and retrieve AQ data through the Clearinghouse
- Connect AQ Applications to GCI

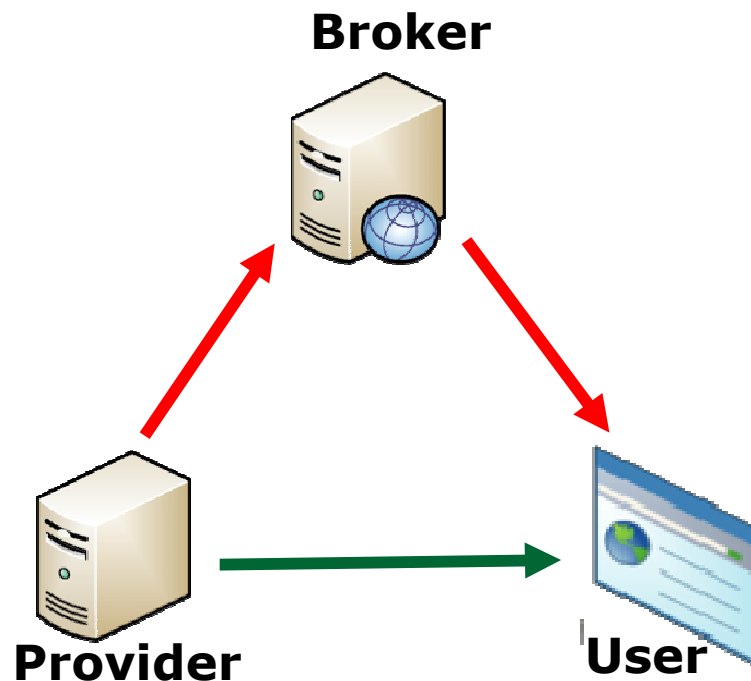




SOA Actions

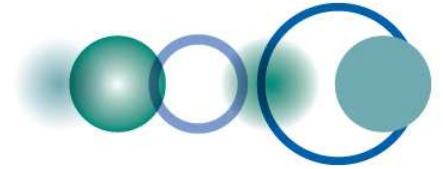
Actions:

Register– Discover –Access



Data reuse is possible when:

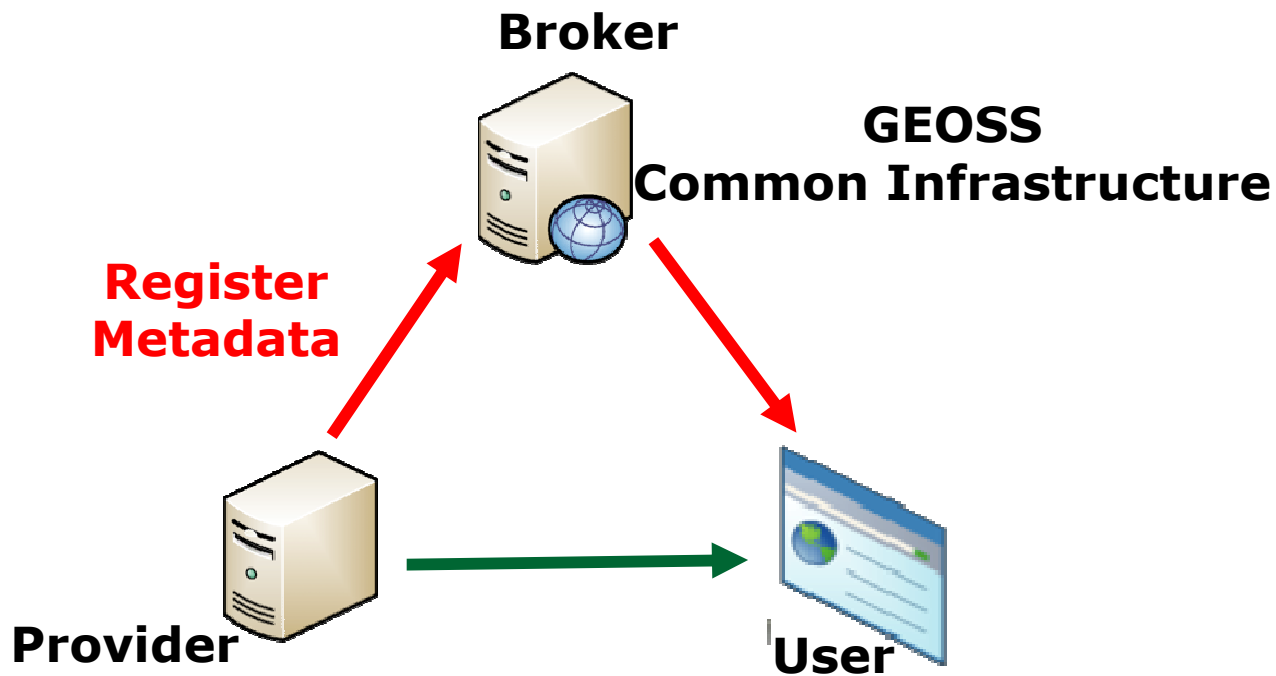
- datasets of value to the user are **identified** by the community
- and are **accessible** through service oriented architecture of GEOSS.

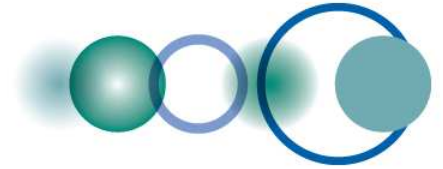


SOA Actions

Actions:

Register– Discover –Access

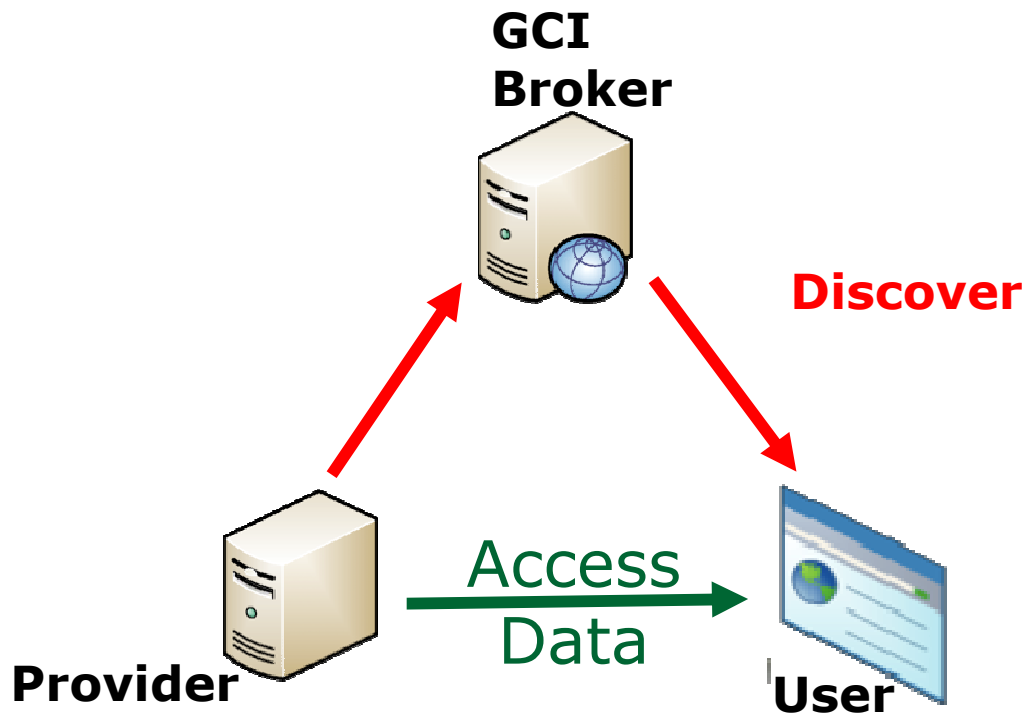


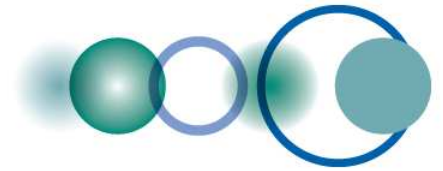


SOA Actions

Actions:

Register– Discover –Access

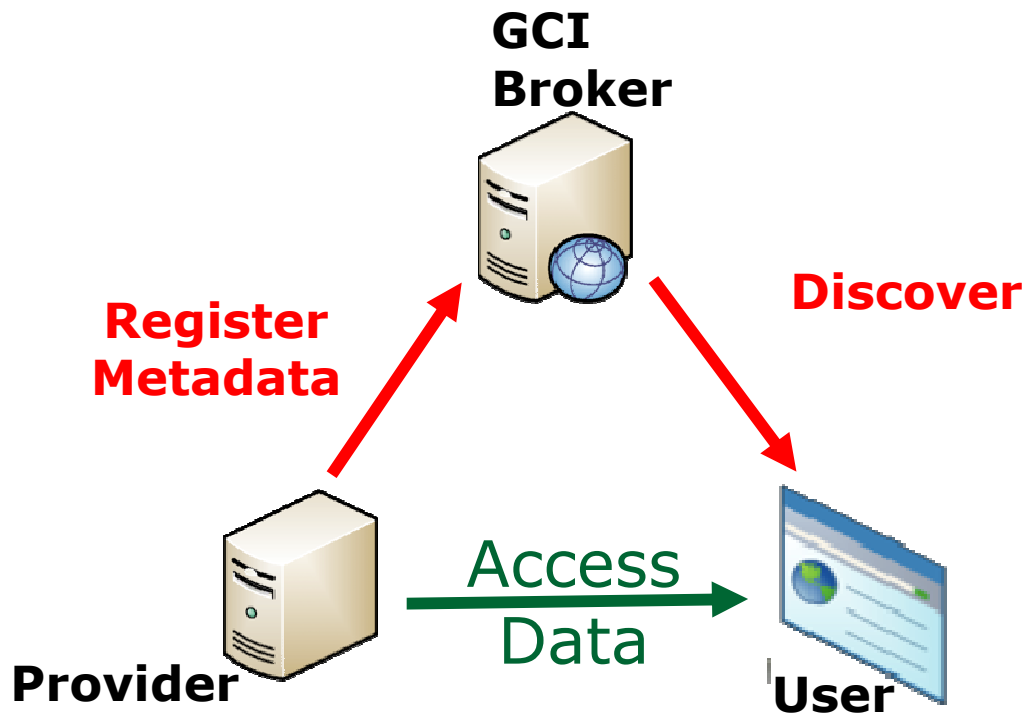




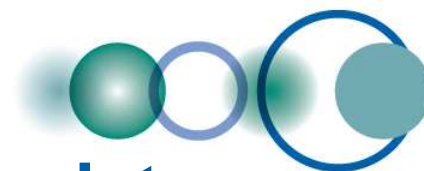
SOA Actions

Actions:

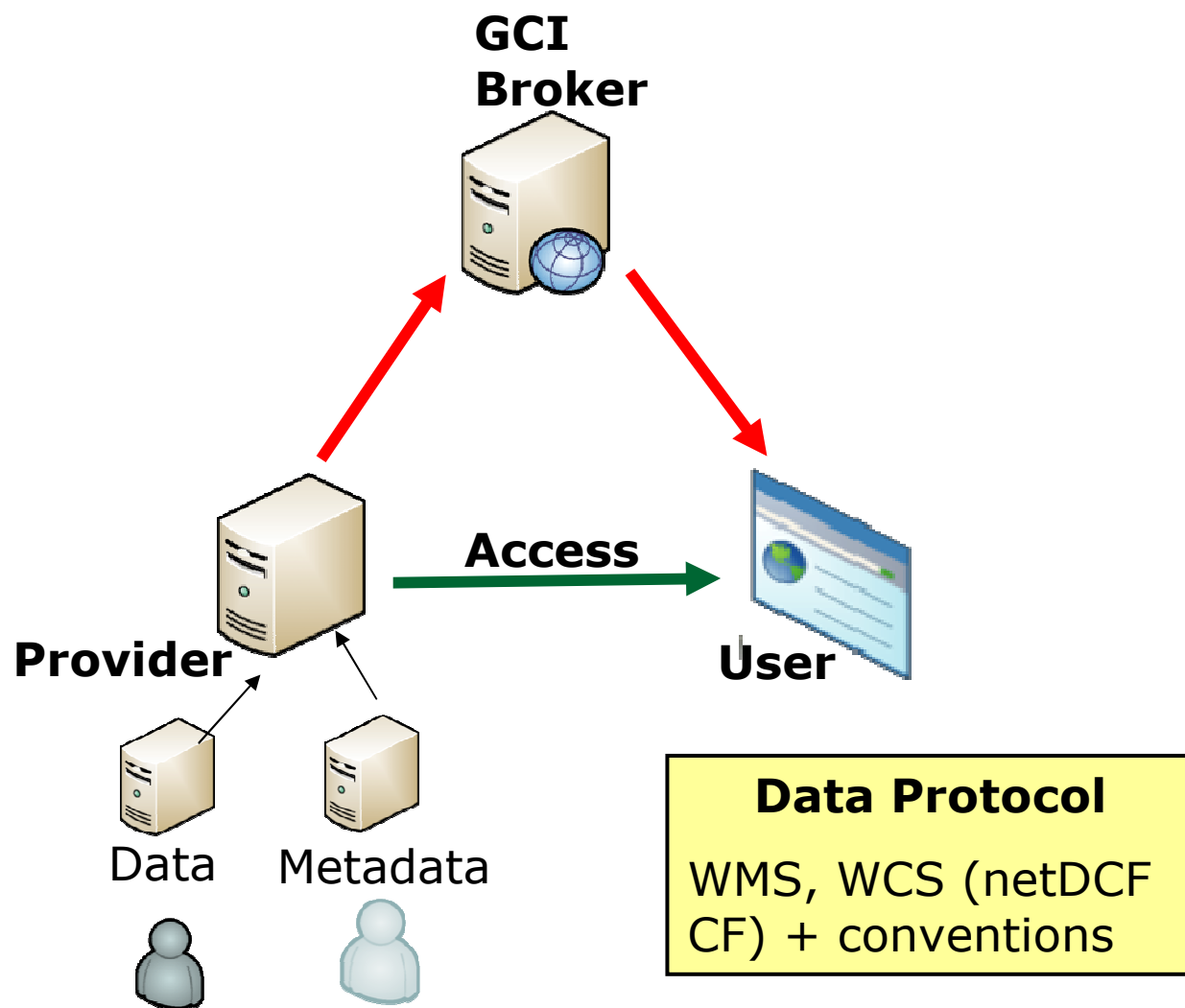
Register– Discover –Access



The result is a ***dynamic binding*** mechanism to create loosely-coupled work-flow applications.

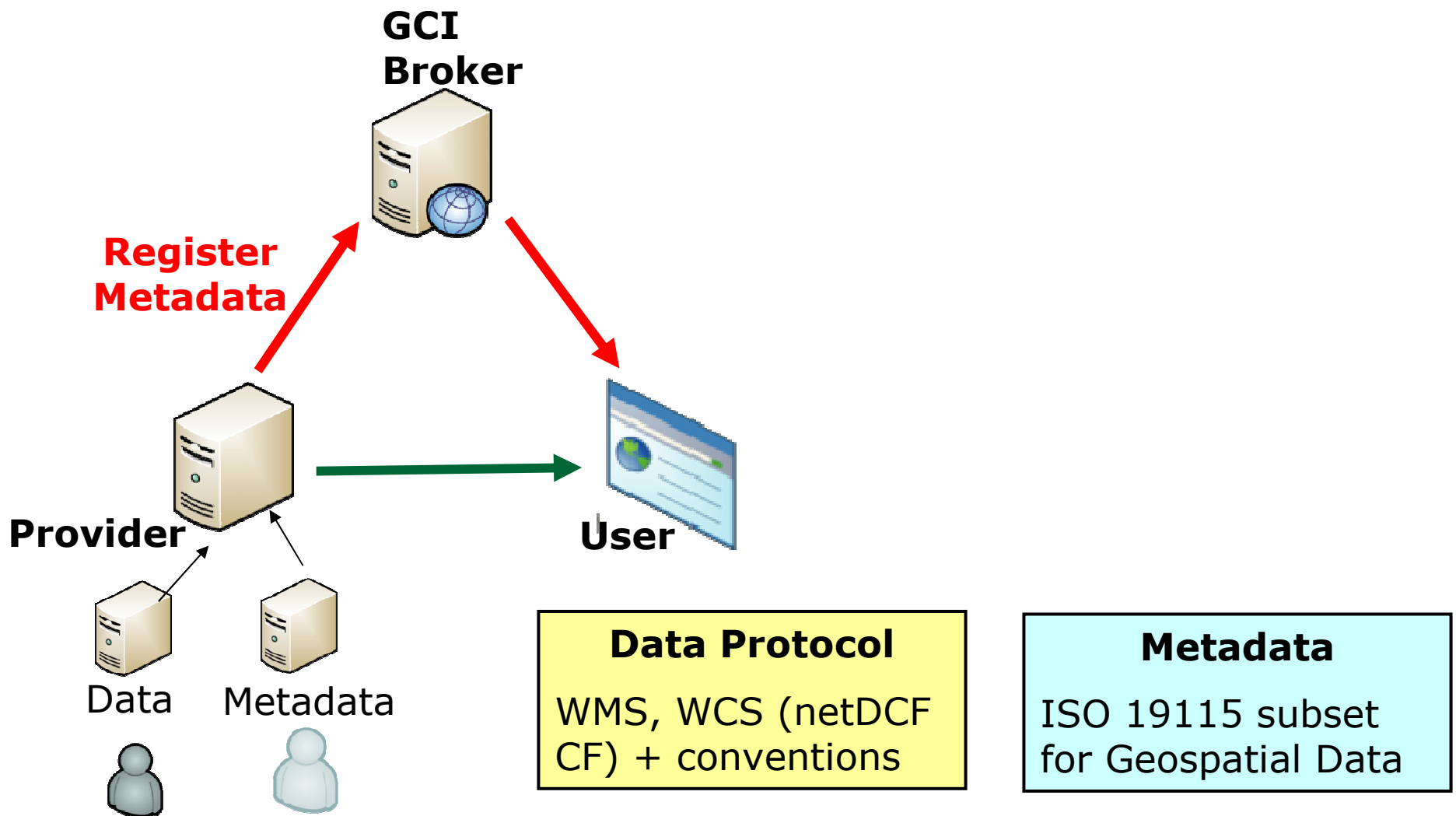


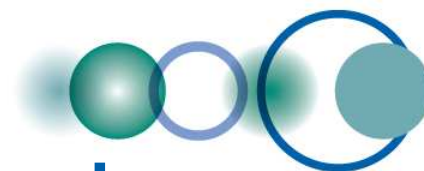
Preparation of Data and Metadata



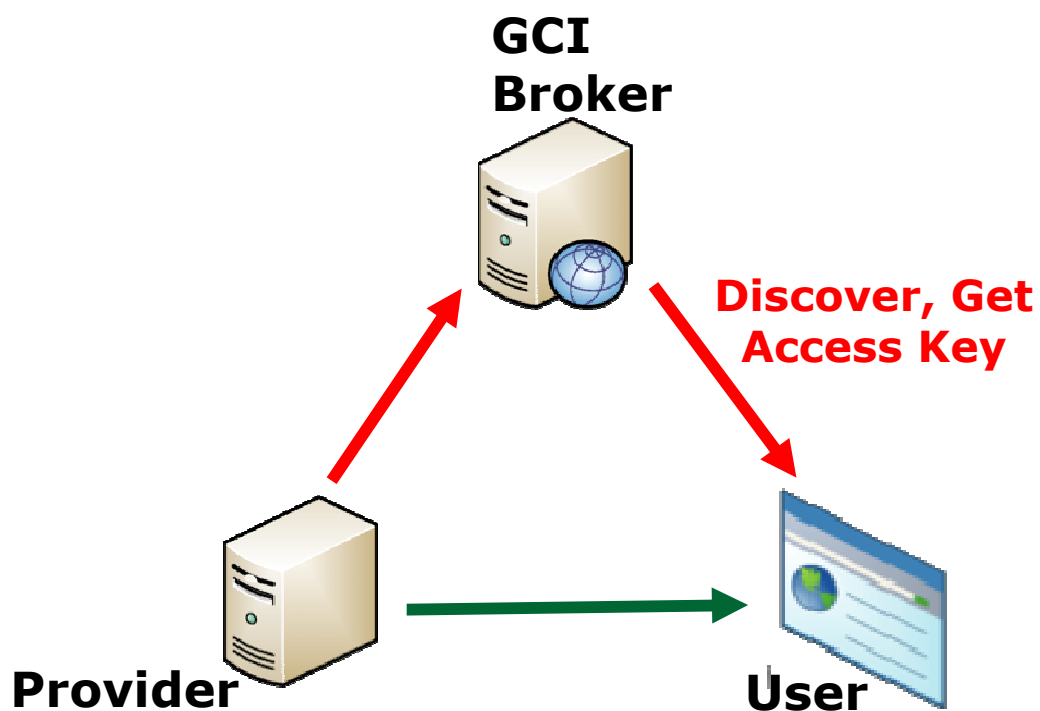


Preparation of Data and Metadata



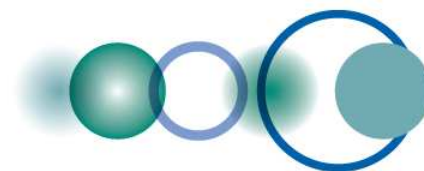


Air Quality Metadata Record

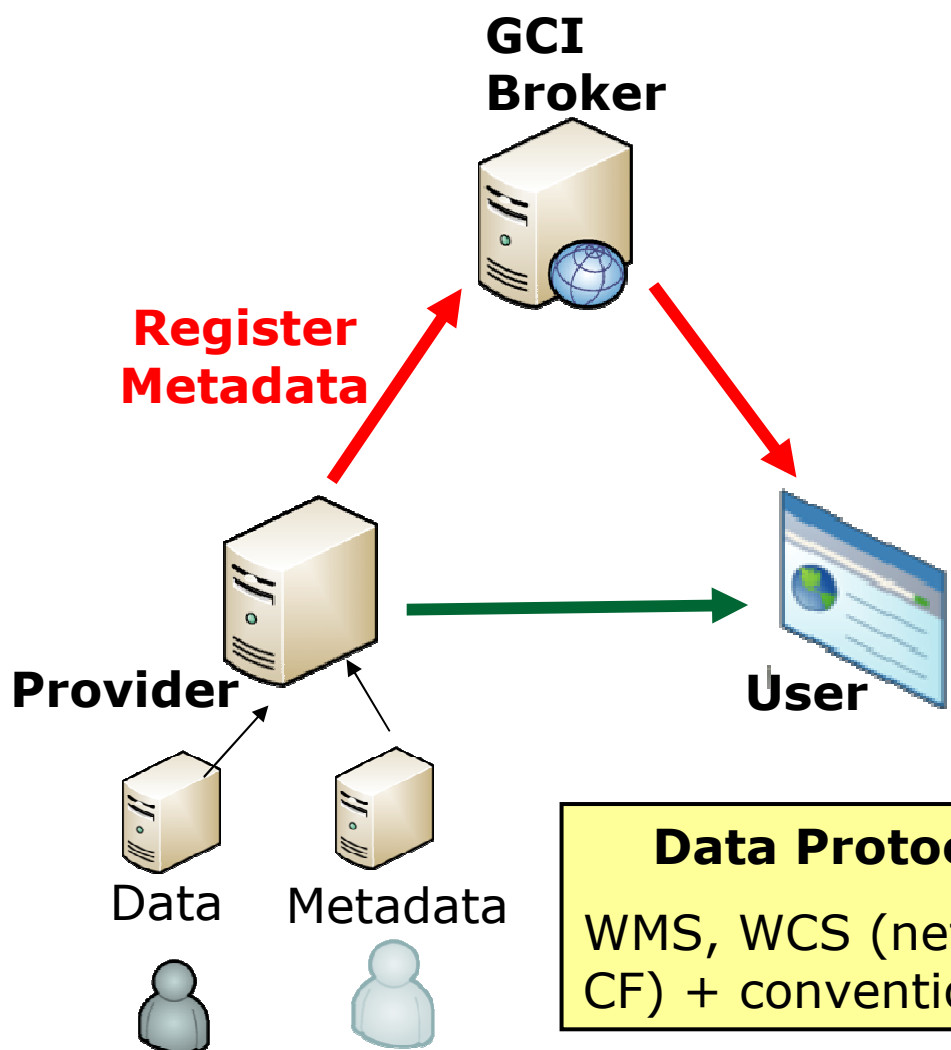


Metadata for Finding and Accessing Data

Data Binding	OGC CSW Queryable	OGC CSW Returnable	ISO 19115 CSW Profile	Metadata Description	Air Quality Specific
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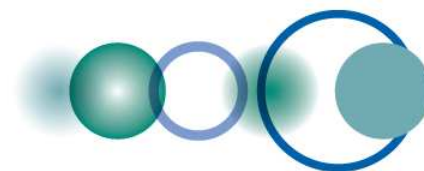


Register Data Service

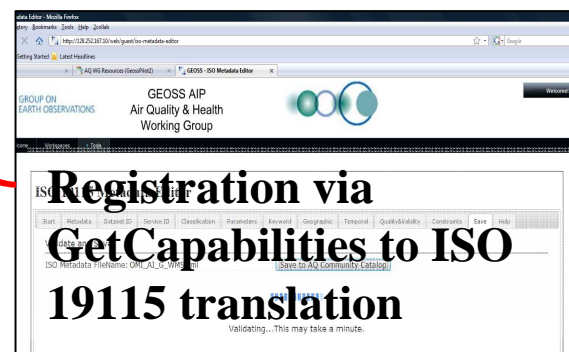
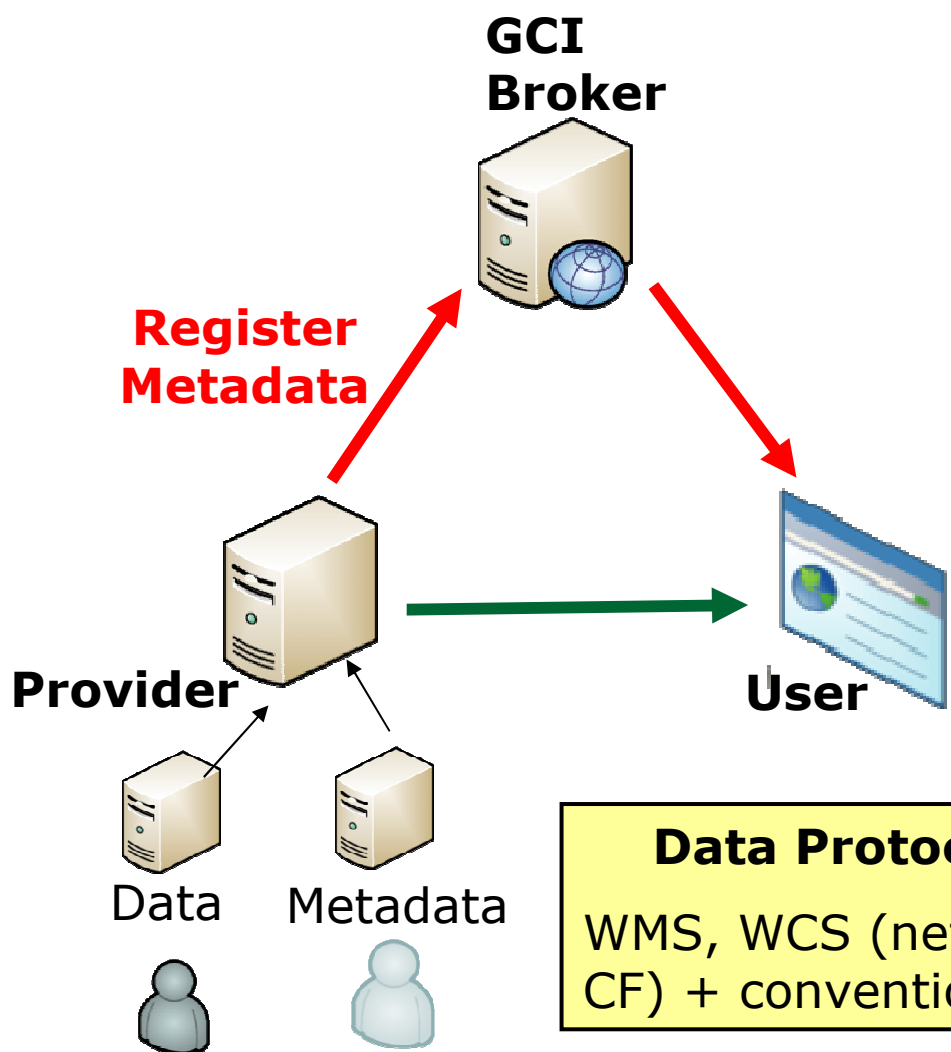


Data Protocol
WMS, WCS (netCDF CF) + conventions

Metadata
ISO 19115 subset for Geospatial Data



Register Data Service



Data Protocol

WMS, WCS (netCDF
CF) + conventions

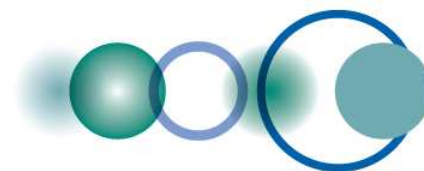
Metadata

ISO 19115 subset
for Geospatial Data

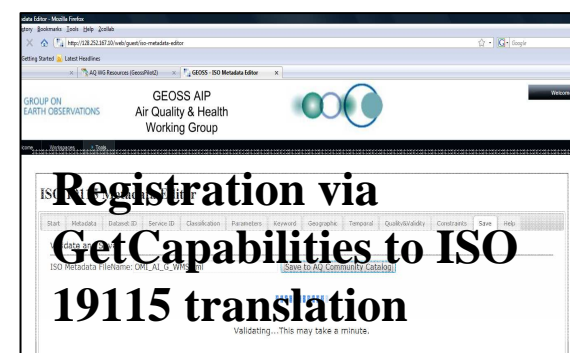
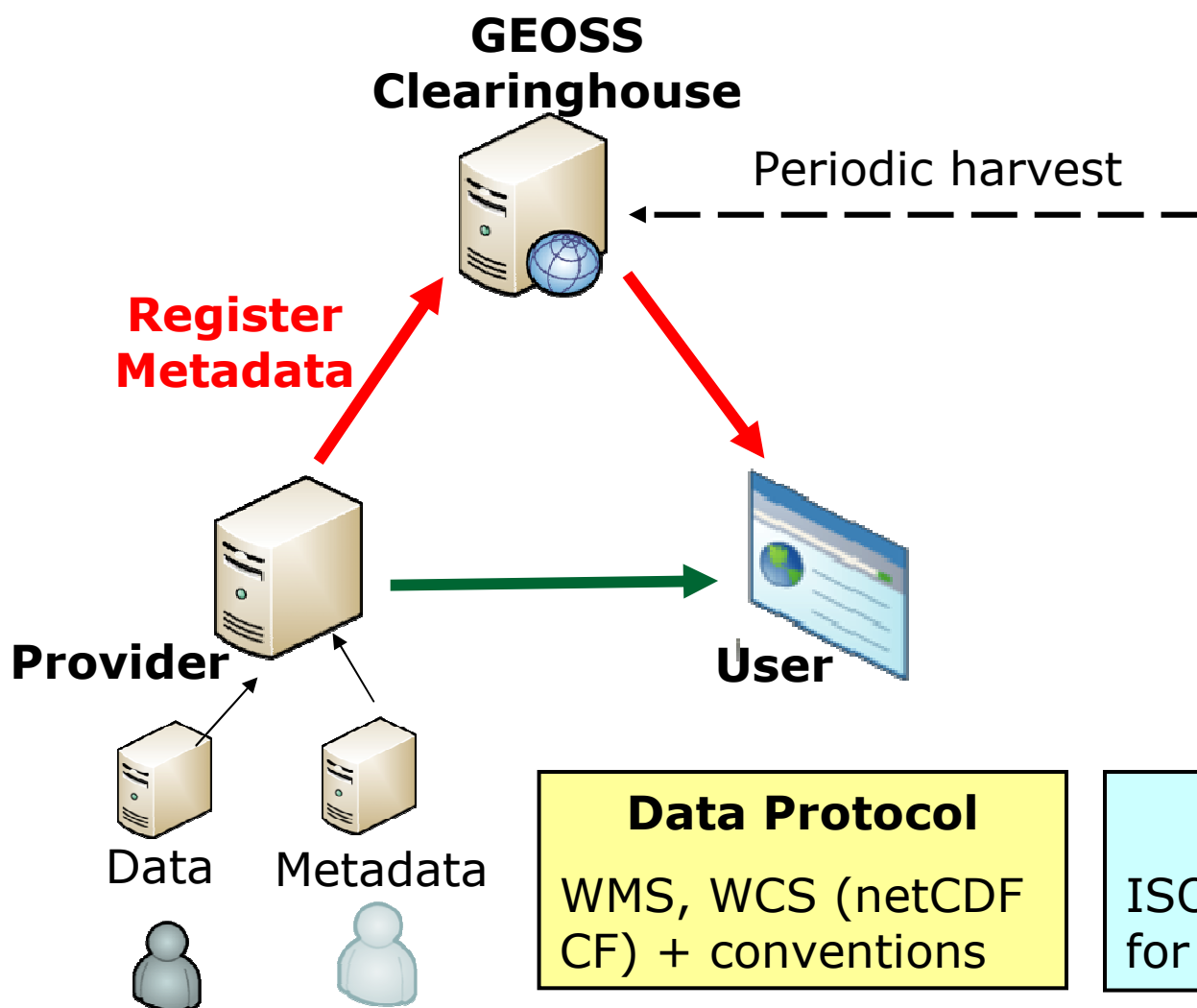
capita.wustl.edu - /DataspaceMetadata_ISO/

[To Parent Directory]

Thursday, April 30, 2009 1:22 PM	74668	Datedated_NETS WCS.xml
Thursday, April 30, 2009 1:22 PM	30583	Datedated_RAINW WCS.xml
Thursday, April 30, 2009 1:22 PM	30584	Datedated_AQ5 3 WMS.xml
Thursday, April 30, 2009 1:22 PM	30585	Datedated_ADW WCS.xml
Thursday, April 30, 2009 1:22 PM	30586	Datedated_ADW WMS.xml
Thursday, April 30, 2009 1:22 PM	30587	Datedated_AVHRS WCS.xml
Thursday, April 30, 2009 1:22 PM	30588	Datedated_AVHRS WMS.xml
Thursday, April 30, 2009 1:22 PM	30589	Datedated_CIESIN EPW WMS.xml
Thursday, April 30, 2009 1:22 PM	30590	Datedated_CIESIN POP WMS.xml
Thursday, April 30, 2009 1:22 PM	30591	Datedated_GOME2 G WMS.xml
Thursday, April 30, 2009 1:22 PM	30592	Datedated_GSOD WCS.xml
Thursday, April 30, 2009 1:22 PM	30593	Datedated_GSOD WMS.xml
Thursday, April 30, 2009 1:22 PM	30594	Datedated_MODIS14A1 WMS.xml
Thursday, April 30, 2009 1:22 PM	30595	Datedated_NAEPS GLOBAL WMS.xml

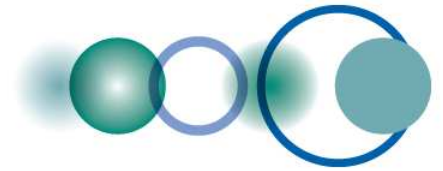


Register Data Service

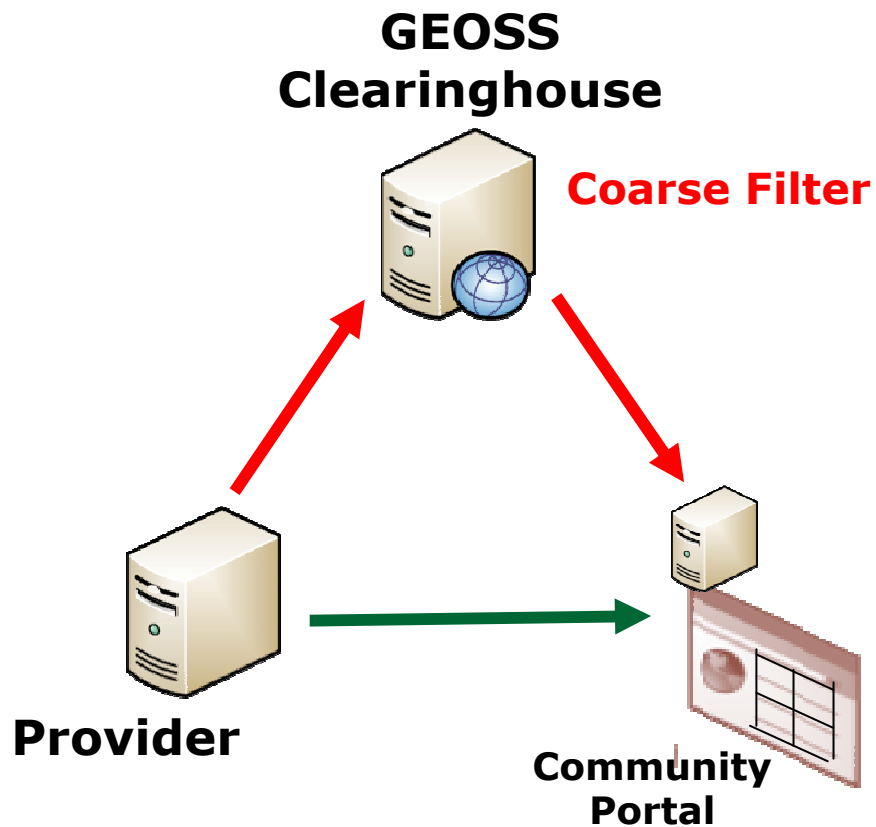


Data Protocol
WMS, WCS (netCDF CF) + conventions

Metadata
ISO 19115 subset for Geospatial Data



Search for AQ Data



GEOSS-CLEARINGHOUSE: Common Search Facility

Search keywords:

Search title:

Search record type:

Search collection:

Search full text:

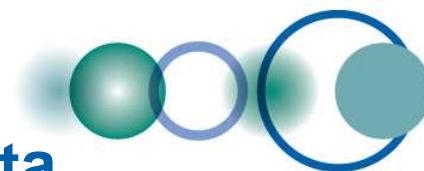
Search abstract:

Search identifier:

Bounding box (W,S,E,N):

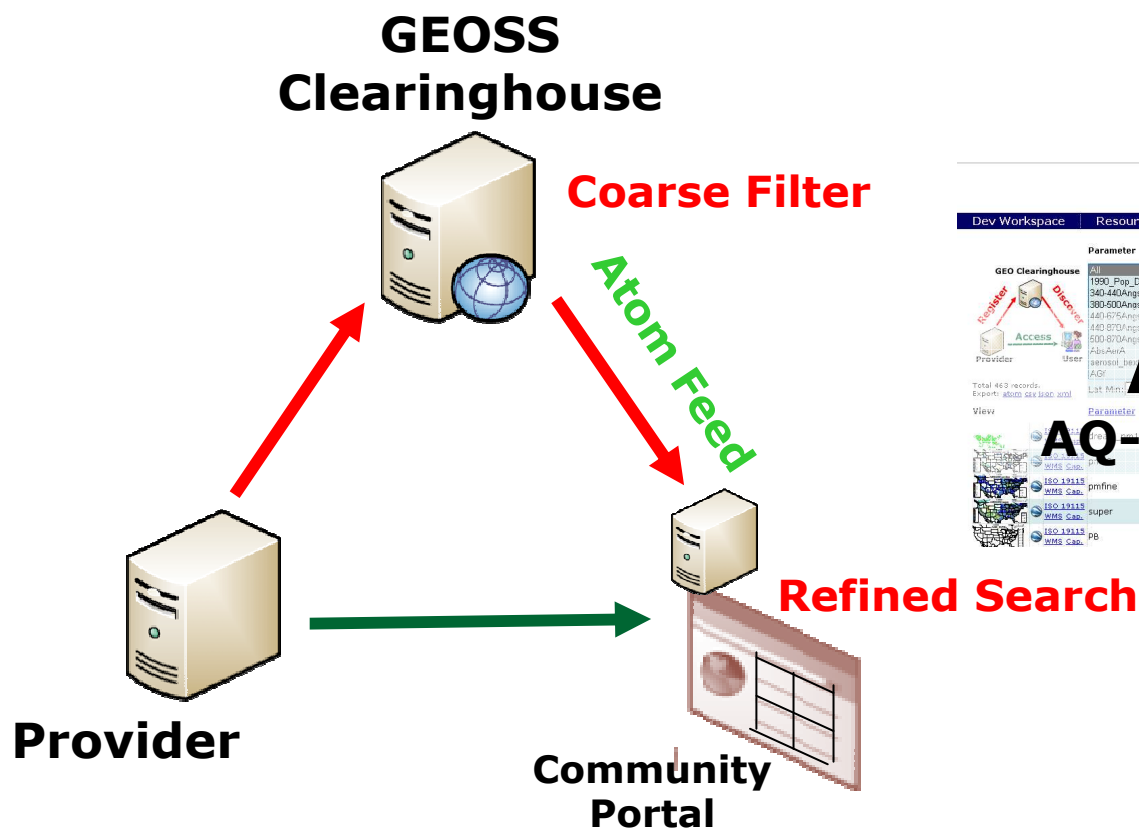
Format to return: ☒ HTML | ☐ Atom | ☐ Dublin Core | ☐ RSS | ☐ Plain Text

Data Binding	OGC CSW Queryable	OGC CSW Returnable	
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User-Oriented Search for AQ Data

http://webapps.datafed.net/AQ_uFIND.aspx



AQ uFIND
AQ-user specific filter

Parameter	Distributor	Dataset	Domain	Platform	TimeRes	Vertical	Datatype
1990_Pop_Density	CIRES	AERONETd	All	Aerosol	Count	Day	Column
340-440Angstrom	DataFed	AIRNOW	Aerosol	Count	Hour	Hour	Surface
380-500Angstrom	EDAC-LNM	AQS_D	Emission	Model	Month	Month	Point
440-675Angstrom	ESA	AQS_H	Fine	Network	Year	Yearly	Trajectory
440-675Angstrom	Gloves	AQS_S	Coarse	Satellite	Year	Yearly	Trajectory
600-870Angstrom	Wireless Observation	AQS_S	Coarse	Satellite	Year	Yearly	Trajectory
600-870Angstrom	Wireless Observation	AQS_S	Coarse	Satellite	Year	Yearly	Trajectory
600-870Angstrom	Wireless Observation	AQS_S	Coarse	Satellite	Year	Yearly	Trajectory
600-870Angstrom	Wireless Observation	AQS_S	Coarse	Satellite	Year	Yearly	Trajectory
600-870Angstrom	Wireless Observation	AQS_S	Coarse	Satellite	Year	Yearly	Trajectory
600-870Angstrom	Wireless Observation	AQS_S	Coarse	Satellite	Year	Yearly	Trajectory

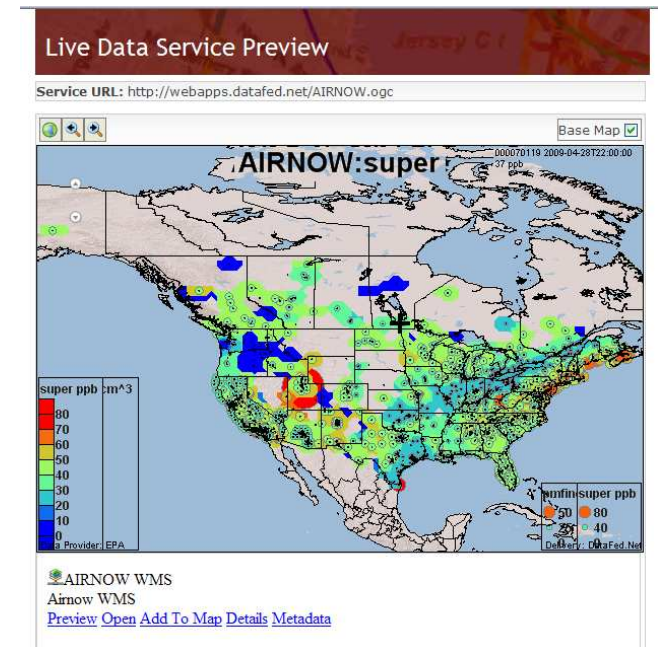
Data Binding	OGC CSW Queryable	OGC CSW Returnable	ISO 19115 CSW Profile	Metadata Description	Air Quality Specific
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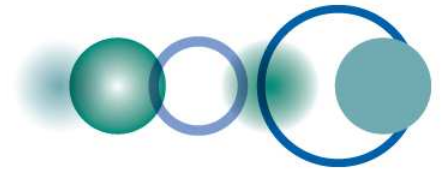
http://webapps.datafed.net/AQ_uFIND.aspx


AQ u FIND

Potential: Univ. NM, GMU

Portals







navigation

- Main Page
- Community portal
- Current events
- Recent changes
- Random page
- Help
- Donations

search

Go Search

toolbox

- What links here
- Related changes
- Upload file
- Special pages
- Printable version
- Permanent link


article discussion edit history move watch edit with form

AIRNOW

< Back to DataFed Compact Catalog

AIRNOW - Surface Monitoring Data for PM2.5 and Ozone

Edit with Form | Metadata Workspace Help



Description: AIRNOW is an EPA program in collaboration with the States to gather and distribute hourly near-realtime data from several hundred continuous PM2.5 and ozone monitors. From the point of view of the FASTNET project the AIRNOW system establishes the spatial and temporal patterns of the key pollutants PM2.5 and ozone. The AIRNOW dataset is provided to the FASTNET project by EPA using a web-based interface. Parameters: PM2.5, Ozone
Domain: Aerosol | Platform: Network | Method: Point | Type: POINT

Viewers: DATA VIEWER

Data Access Services: WMS | WCS

EPA
Provider
Source
Citation
Lineage

User-provided Metadata

AirNOW FAQ's

Lineage
The AirNOW data are obtained from the EPA AirNOW website (link). The data for each day is contained in an ASCII OBS file. In DataFed these OBS files are compiled and cached in a binary data cube which allows fast access, particularly along the time axis.


Websites
Websites tagged in Del.icio.us with: AirNOW Link 0

Papers
Papers tagged in Del.icio.us with: dataset AirNOW Paper 0

Automatic Searches

- Google Search | Blogs | Scholar | Images
- Technorati Blogs - AirNOW + EPA
- Del.icio.us - AIRNOW

Dataset Description



navigation

- Main Page
- Community portal
- Current events
- Recent changes
- Random page
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search

Go Search

toolbox

- What links here
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article discussion edit + history move watch

Talk:AIRNOW

< Back to AIRNOW

AirNOW time zones -- KBenedict May 10, 2007 [new][edit][reply]

In the AirNOW dataset that is accessible through DataFed, what is the time zone for the stations data?

Re: AirNOW time zones -- Rhusar May 11, 2007 12:14 PM [new][edit][reply]

Hey Sean, I know you may be out roaming the world and I need a small favor. Would you check with the AirNow cast in your office what is the time zone for the DataFed service and we will adjust for it. We need to fix the DataFed WCS service so the times are properly encoded with the time zone for each station. Thanks in advance,

Re: Re: AirNOW time zones -- SRaffuse May 11, 2007 12:30 PM [new][edit][reply]

Rudy, According to the AIRNow folks here, the time zone depends on the OBS file and is specified in the header (TZONE). The example you linked below is in EDT.

Re: Re: Re: AirNOW time zones -- Rhusar May 11, 2007 12:54 PM [new][edit][reply]

Ok, is the TZone for a station changing with time or is it the same for a specific station?

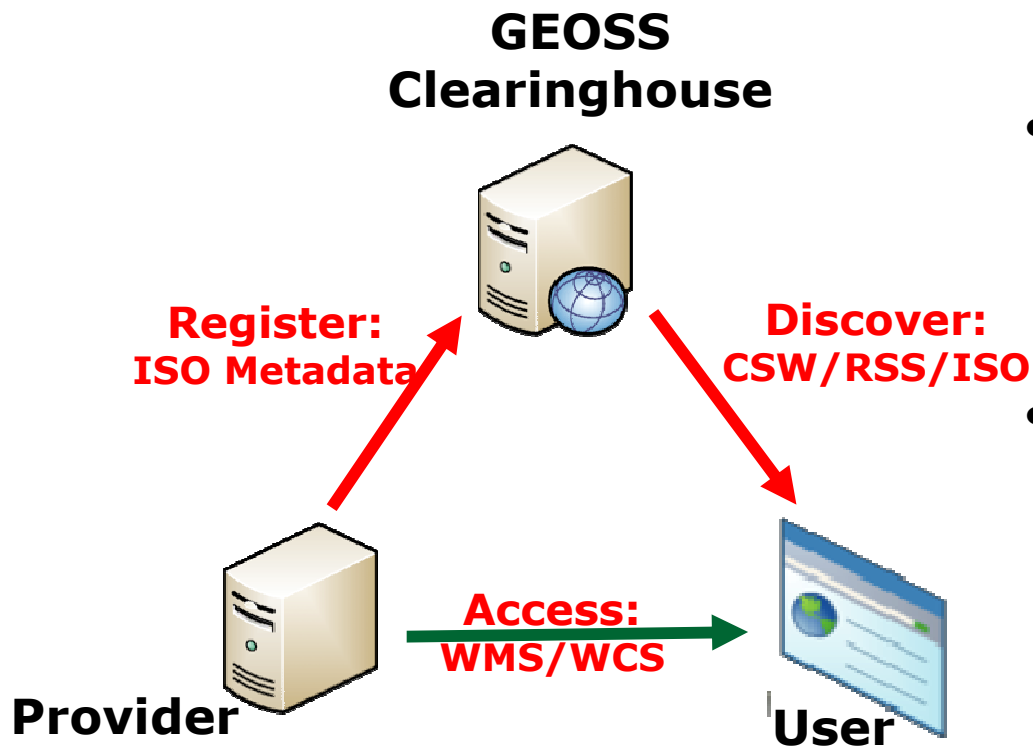
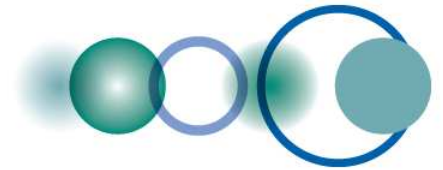
Re: Re: Re: Re: AirNOW time zones -- SRaffuse May 11, 2007 12:58 PM [new][edit][reply]

I believe that it can change with time at the whim of the agency delivering the data. For example, they may switch to and from daylight savings time. I have cc'd the AIRNow data management center folks and they can correct me if I am incorrect.

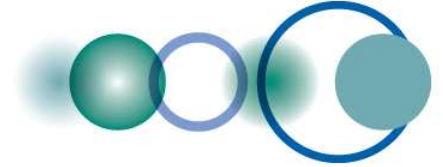
Re: Re: Re: Re: AirNOW time zones -- KBenedict May 11, 2007 1:31 PM [new][edit][reply]

Quite impressive instant oratification. I'm amazed. Is there anything we can do to help at this point? I'm not sure that normalization

Dataset Discussion

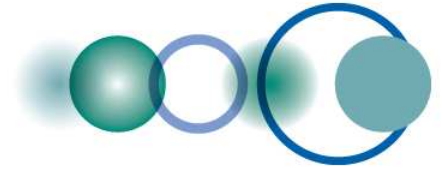


- Existing data and metadata standards now allow the application of SOA to air quality
- Over 100 air quality datasets are registered and accessible through the GCI, from 6 providers



Next Steps:

- Continue to work with AQ community to improve the AQ-specific sections needed for sharper discovery
- Work with AQ data providers to register their services in the AQ Community Catalog
- Extend metadata
 - Unstructured user-contributed content, DataSpaces
 - Data quality
 - Lineage

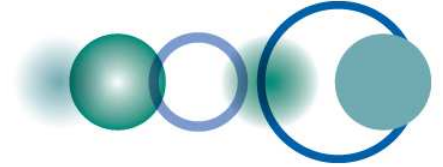


Acknowledgements

George Percivall, OGC

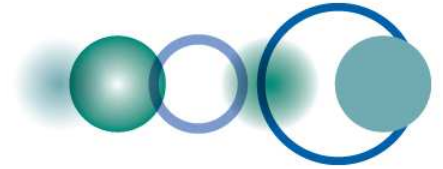
GEO Clearinghouses and GEO Portals:

- **ESRI**
- **USGS**
- **Compusult**

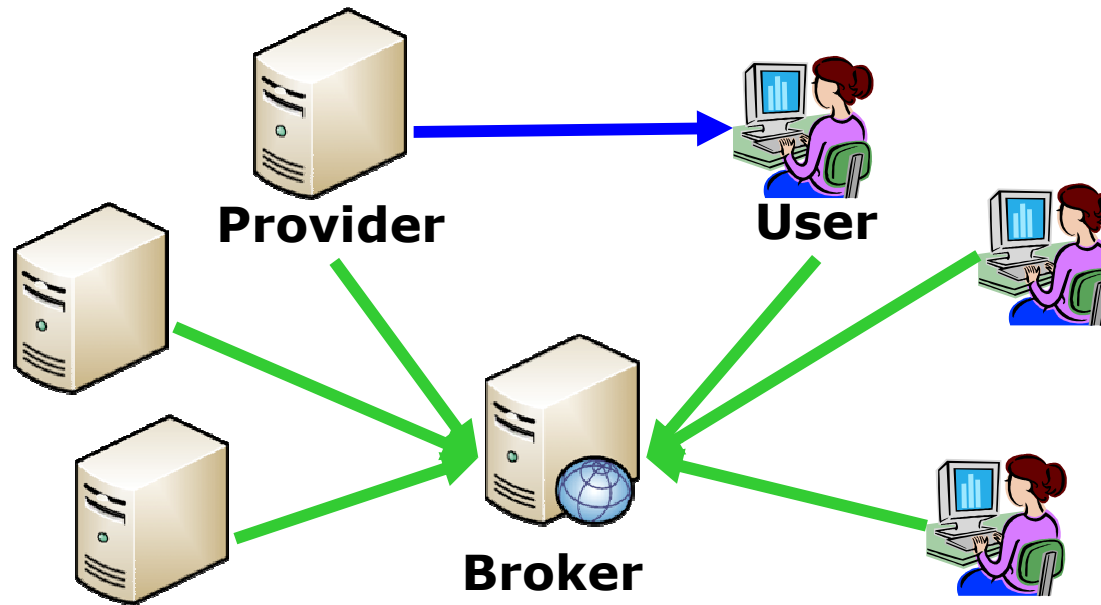


Links

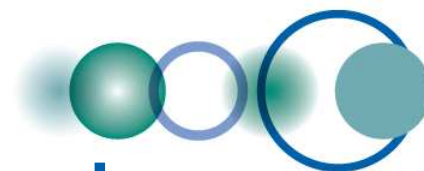
- [ESIP AQ Cluster](#)
- [AQ Community Portal](#) | [ISO 19115 AQ Metadata Editor](#)
- [AQ Community Catalog](#) | [AQ Client Browser](#)
- [AQ AIP-II Engineering Report](#)



Actions: **Register- Discover- Access** **SOA Actions**

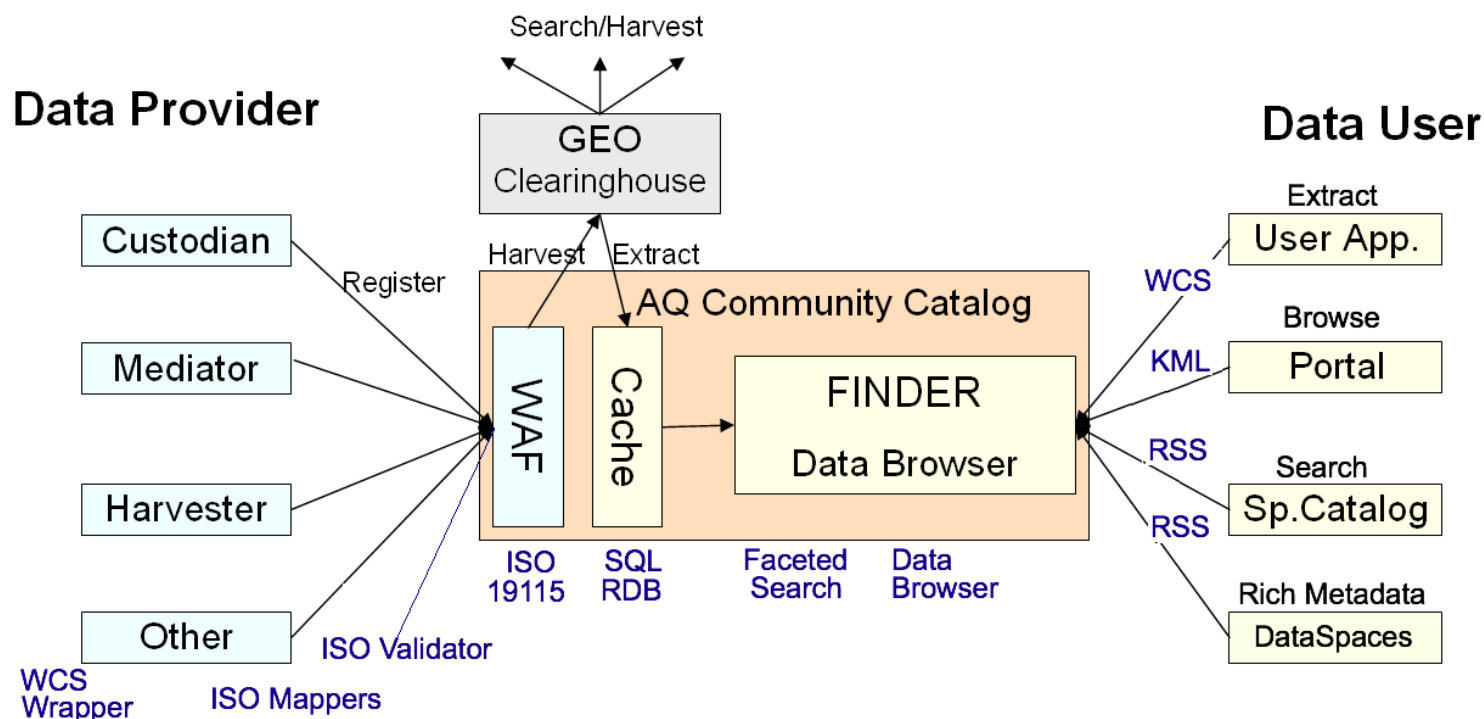


The data reuse is possible through the service oriented architecture of GEOSS.



Air Quality Metadata Record

Metadata Flow Schematics



Metadata for Finding and Accessing Data

